Isolation and Identification of Algicide in a Jellyfish A*urelia aurita*

Handa, Shin-ya.[1], Uchida, Naoyuki.[1], Nakazato, Kingo.[2], Hiromi, Juro.[1]
1. Nihon University, Fujisawa, Japan, 2. Chemicals Evaluation and Research Institute, Japan

It is well-known that a jellyfish, *Aurelia aurita*, occurs densely in eutrophic coastal waters, and frequently gets into troubles with fishery and power plants in the coastal regions. Therefore, there needs a study to develop the effective utilization of abnormally-enlarged population of jellyfish. A previous study has suggested availability of the jellyfish as nutrients for algal mass-culture, however, we have recently found the jellyfish to generate substance killing harmful/toxic flagellates such as *Heterosigma akashiwo*, *Gymnodinium mikimotoi*, *Chattonella antiqua*, and *Heterocapsa circularisquama*. In the present study the algicidal substance generated by a jellyfish *Aurelia aurita* is isolated and identified. Algicidal substance in the autolysate from the jellyfish was isolated by sequential procedures consiting of chromatography on a reverse phase cartridge (Sep-pak C_{18}), silica gel-TLC, and HPLC on a gel filtration column (Superdex peptide) and on a reverse phase column (L-column). The isolated substance was identified by LC-MS analysis. LC-MS analysis revealed the algicidal substance to have three main fragments with m/z=301(M-1), m/z=257(M-45, M-COOH), and m/z=203. It is concluded that the isolated algicidal substance is cis-5, 8, 11, 14, 17-icosapentanoic acid (IPA) based on the complete coincidence of mass spectrum between the algicidal substance and standard IPA. This conclusion was moreover confirmed by comparing LC_{50} values for *Gymnodinium mikimotoi* between the algicidal substance and IPA.